Surgery content for this topic is a reduced and simplified version of Internal Medicine GI-Gallbladder. It's present for Surgery-Only review (Shelf Studying).

Gallbladder Means Gallstones

Except for the obstructive jaundice section, gallbladder pathology generally means gallstones. We're going to talk about when stones (cholelithiasis) go bad.

Gallstones

Gallstones occur in **females** who are **fat**, **forty**, and **fertile** (they have **four or five** kids), and **fNative American** (the F is silent). and those who have a **hemolytic anemia**. Generally, **asymptomatic gallstones are left alone**. Symptomatic gallstones present with a **colicky RUQ abdominal pain** that may radiate to the **right shoulder** and occur **after a big fatty meal**. Symptoms are typically **self-limited**. An **ultrasound** diagnoses it. An **elective cholecystectomy** can be done if the patient desires. These will convert to Cholecystitis at 2%/yr.

Acute Cholecystitis

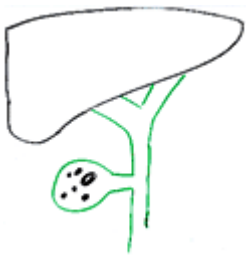
When a gallstone gets in the cystic duct and **stays there** an inflammatory process develops. This causes a **constant RUQ abdominal pain** accompanied by a **mild fever** and **mild leukocytosis**. It's often preceded by an episode of cholecystic colic. There should be a **Murphy's sign**. Diagnose with an **ultrasound** to see **pericholecystic fluid**, a thickened gallbladder wall, and **gall stones.** Equivocal cases can be confirmed with a **HIDA scan**. Urgent cholecystectomy should be performed while still in the hospital. Perc drainage is an option.

Ascending Cholangitis and Choledocholithiasis

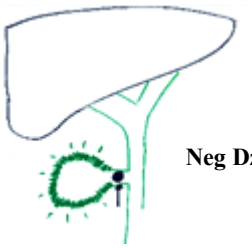
If there's an **obstructive jaundice** and/or **pancreatitis** along with cholecystitis symptoms, there may be a stone in the common duct (**choledocholithiasis**). **MRCP** makes the diagnosis, and **ERCP** retrieves the stone. Eventually the gallbladder needs to come out. Do MRCP first to avoid iatrogenic pancreatitis with ERCP. Abx are usually given in case of developing cholangitis.

If, however, there's a **high fever** (> **104.1**), **severe leukocytosis,** and symptoms of obstructive jaundice without peritoneal findings there's an infection behind the stone: **cholangitis**. SKIP the MRCP and start with **ERCP** (percutaneous drainage is also possible, so long as it gets decompressed) Add **IV antibiotics** to cover gram negative and anaerobes (cipro + metronidazole). The right answer when considering ascending cholangitis is to start antibiotics and do **emergent ERCP**. Once stable, a cholecystectomy is performed.

Normal Anatomy of the Hepatobiliary system

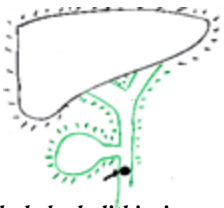


Asx Gallstones present, without obstruction

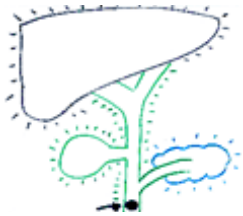


Acute Cholecystitis. *Gallstone lodges in Cystic Duct, inducing Inflammation of the Gallbladder. No hepatic/pancreatic involvement*

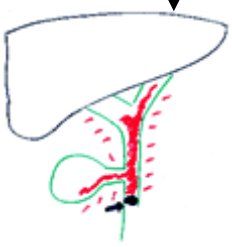
HIDA scan*. Normal on left has tracer throughout biliary system. Obstruction on right prevents filling of the gallbladder. Positive study.*



Choledocholithiasis. *Obstruction of common duct proximal to pancreatic duct. Elevation in Biliary and Liver enzymes only.*



Gallstones Pancreatitis. *Obstruction of common duct distal to pancreatic duct. Biliary, Liver, AND Pancreatic enzymes.*



Ascending Cholangitis *Choledocholithiasis + Infxn Proximal to obstruction. Chills, High Fever, Severe Leukocytosis*

Cholangitis:

1) RUQ Pain
2) Fever
3) Jaundice

} Charcot's Triad

4) Hypotension
5) AMS

} Reynold's Pentad

Dz	*Path*	*Pt*	*Dx*	*Tx*
Stones ("Lithiasis")	Cholesterol = the "Fs" Pigmented = Hemolysis	ASX	U/S, Diagnosis not required	None
Cholecystitis	Cystic Duct Obstruction	RUQ Pain, Murphy's Sign	U/S → HIDA mild fever , mild leukocytosis	Cholecystectomy (urgent)
Choledocholithiasis (koh-lee-doh-koh)	Common Bile Duct Obstruction = Hepatitis and/or Pancreatitis also	RUQ Pain, Murphy's Sign + ↑AST/↑ALT, ↑Lipase/↑Amylase	U/S → MRCP mild fever, mild leukocytosis	ERCP (urgent), Cholecystectomy (elective)
Ascending Cholangitis	All of the above PLUS Infection behind the stone	RUQ Pain, Murphy's Sign + ↑Labs, T >104, Leukocytosis	U/S → ~~MRCP~~→→ ERCP severe fever and leukocytosis	ERCP (emergent) Cholecystectomy (urgent)